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Guidelines for the selection of appropriate remote sensing technologies for landslide detection, monitoring and rapid mapping: the experience of the SafeLand European Project.

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New earth observation satellites, innovative airborne platforms and sensors, high precision laser scanners, and enhanced ground-based geophysical investigation tools are a few examples of the increasing diversity of remote sensing technologies used in landslide analysis. The use of advanced sensors and analysis methods can help to significantly increase our understanding of potentially hazardous areas and helps to reduce associated risk. However, the choice of the optimal technology, analysis method and observation strategy requires careful considerations of the landslide process in the local and regional context, and the advantages and limitations of each technique.

Guidelines for the selection of the most suitable remote sensing technologies according to different landslide types, displacement velocities, observational scales and risk management strategies have been proposed. The guidelines are meant to aid operational decision making, and include information such as spatial resolution and coverage, data and processing costs, and maturity of the method. The guidelines target scientists and end-users in charge of risk management, from the detection to the monitoring and the rapid mapping of landslides. They are illustrated by recent innovative methodologies developed for the creation and updating of landslide inventory maps, for the construction of landslide deformation maps and for the quantification of hazard.

The guidelines were compiled with contributions from experts on landslide remote sensing from 13 European institutions coming from 8 different countries. This work is presented within the framework of the SafeLand project funded by the European Commission's FP7 Programme.